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APPLIED FORESTRY NOTES

NORTHERN ROCKY MOUNTAIN
FOREST AND RANGE EXPERIMENT STATION

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DOWNY BROME (CHEATGRASS) RANGE FOR HORSES

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Downy brome or cheatgrass, Bromus tectorum, was apparently introduced to the United States from overseas sixty or more years ago and reached western Montana in its aggressive invasion somewhere around the turn of the century. It found nearly ideal conditions for spreading with the abandonment of great areas of dry-farmed lands immediately after the World War. It is dominant in early stages of succession on many thousand acres of dry-farmed and on overgrazed ranges in western Montana and other states. Cheatgrass is the name more commonly used locally.

Some contend that cheatgrass is a serious menace to range productivity while many stockmen hold it in high regard, especially for spring feed and again in the fall after green growth starts. A test conducted by the Forest Service in 1937 and 1938 provides some preliminary data as to the value of cheatgrass range for horses. In May 1937, an area of 30.5 acres of once dry-farmed land in the foothills of the Flathead Valley, about 65 miles northwest of Missoula, was fenced for this test. This land has not been tilled for a period of ten or more years. Based on 96 clipped and air-dried samples in 1937, cheatgrass made up 89 percent by weight of total vegetation, while salsify, yarrow, mountain dandelion, mustard, and other weeds made up 10 percent and other grasses, mainly Sandberg bluegrass, less than one percent of the total volume of forage.

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In 1937 three idle saddle horses, 6 to 11 years old, were weighed and placed in this 30.5-acre pasture on May 25 with access to a natural spring and removed on December 1. In 1938 four horses were grazed on this same pasture from June 2 to October 20, and two of these remained until November 19. In 1937 the horses were weighed at intervals of two weeks and in 1938 at intervals of approximately three weeks. Following are average weights of the horses through two seasons:

Average weight of idle saddle horses on cheatgrass range.

Three horses - 1937		Four horses - 1938	
	Pounds		Pounds
May 25	1133	June 2	1212½
June 8	1217	June 23	1232½
June 22	1233	July 14	1231½
July 6	1235	August 4	1207½
July 20	1233	September 1	1220
August 3	1233	September 22	1175
August 17	1212	October 20	1142½
August 31	1220	November 19 (two horses only)	1010
September 14	1198		
September 29	1182		
October 14	1100		
November 1	1120		
December 1	1080		
Average net loss 6-1/5 mos.	53#	Average net loss 4-2/3 mos.	70#
		Average net loss for 2 horses carried 5-2/3 mos.	90#
Total feed furnished, 18.6 horse months.		Total feed furnished, 20.4 horse months.	

It will be noted that near peak weights during both 1937 and 1938 were well maintained into September for more than two months after the cheatgrass matured and became harsh and dry. In late October 1937, slight gains in weights took place, coincident with fall growth of cheatgrass resulting from early fall rains. In 1938, fall rains were insufficient to produce any material amount of green fall growth before horses were removed. Horses were lively and in especially good condition at the close of the 1937 season and slightly less so at the close in 1938. The average loss of weight was 53 pounds the first season and 70 pounds the second from the initial weights. The two horses that remained in the pasture in 1938 until November 19 averaged 90 pounds lighter than when the test started in the spring.

On December 1, 1937, there still remained enough matured cheatgrass to carry the three horses for several weeks but by November 19, 1938, the utilization was much closer. More than half the cheatgrass heads were filled with smut in 1937. In spite of this, the horses were alert and thrifty in appearance throughout the late summer after all palatable weeds had been eaten when they were forced to subsist almost wholly on cheatgrass which was very smutty. The grass crop seemed lighter in 1938 and Mormon crickets were quite abundant. The pasture was dusted with arsenic poison early in June, which destroyed many of the crickets, but enough

remained through the season to eat a substantial portion of the succulent weed feed which otherwise would have been available for the horses. They developed no trouble from sore mouths from grazing over mature cheatgrass during either season.

During these two seasons, this 30.5-acre pasture supported 3 and 4 saddle horses in reasonably good condition at the average rate of slightly less than 1.6 acres per horse month. This compared favorably with the grazing capacity of well managed, good native range land and indicates a relatively high value of cheatgrass range for horses. It has often been stated that cheatgrass is practically worthless for pasturage after seed maturity, but this is not confirmed by this test. There were indications in 1938 that cheatgrass had reached or passed its maximum production and that perennial grasses and weeds were increasing at the expense of cheatgrass production so that there is no assurance that cheatgrass will continue with a grazing capacity of 1.6 acres per horse month over a period of years.

Samples from 96 plots, half of which were fenced and ungrazed, and half from grazed portion of this pasture, were used in 1937 for computing yield for cheatgrass and other species present, and as an indication of average daily consumption by the horses. Total yield of matured cheatgrass from ungrazed samples clipped in August was at the rate of 639 pounds per acre, while all other species yielded 76 pounds per acre. No fall growth is included in these yields. The difference in weight of grazed as compared to ungrazed samples indicates a daily consumption for all species combined up to mid-August of 33 pounds for each horse. Composition of the forage as previously mentioned indicates that 89 percent of this total or 29 to 30 pounds of this daily ration was cheatgrass. This amount corresponds fairly close with the requirement of timothy hay given by Henry and Morrison for maintaining an idle 1,000 pound horse.

It is not the intention to suggest from these data for two seasons that cheatgrass is equal to timothy for horse feed. This comparison and test does indicate, however, that cheatgrass range has a higher value for horses during midsummer and later than it has often been given credit for. Close observation during the past two winters on the results of wintering about 30 range cows on a ration of about 20 pounds of hay of which about one-third was cheatgrass, cut a little short of maturity, and the remainder alfalfa tends to confirm the experience of some stockmen that cheatgrass hay has considerable value for wintering cattle. Cases are, however, known where the sharp awns from overripe cheatgrass hay have caused sore mouths when fed in large quantities.

In the foregoing experiment, it was noted that certain plants were grazed in preference to cheatgrass. This suggests the warning that certain desirable plants in the mixture may be overgrazed by forcing animals to closely graze the cheatgrass. This is a questionable practice. It has been found that cheatgrass is largely a winter annual and production may be very low when moisture or other conditions during the previous fall are unfavorable for the seedlings to become established. When it is possible to so manage the range as to encourage other more reliable forage, that is ordinarily the safer procedure. Management to encourage cheatgrass is not advocated.

The belief is frequently advanced that cheatgrass is so aggressive that it will crowd out other more dependable native grasses but little evidence has been found on the ranges to support this view. Plowing, overgrazing, or other serious disturbance of native perennial grasses appears to be essential before cheatgrass can actually replace them. Dry cheatgrass provides a serious fire menace and has other objectionable features. In spite of its many shortcomings, cheatgrass has real value in protecting soil against erosion and because of its relatively good feeding value it may properly be considered as a valuable supplemental forage on many ranges rather than an unmitigated nuisance. Control by replacing it with more dependable species such as crested wheatgrass is a more logical and promising program in the cheatgrass problem than attempts to eradicate it. Further research is needed to determine more definitely the proper place of cheatgrass in range succession and in range management practices over a period of years.